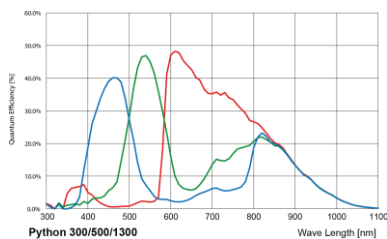


VEXG-02C

Technical Data

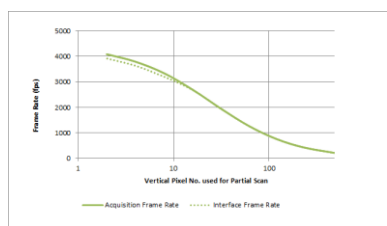
 Art. No.
11151559


Sensor Graph: Relative Response

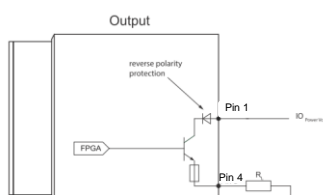


Frame Rates / Partial Scan

(Measured at Mono8/BayerRG8-Format)



Digital Output



Digital Color Matrix Camera, GigE Firmware Revision 1.0

Sensor Information

Model Name	ON Semiconductor Python 300
Type	1/4" progressive scan CMOS
Shutter	global
Resolution	640 x 480 pixels
Scan Area	3.07 mm x 2.30 mm
Pixel Size	4.8 μm x 4.8 μm

Data Quality

@ 20 °C, gain = 1, exposure time = 4 msec

Dark Noise (σ)	11 e- typical
Saturation	8000 e- typical
Dynamic Range	57 dB typical
SNR	39 dB typical
Quantum efficiency η	40 % @ 465 nm, 43 % @ 536 nm, 46 % @ 631 nm typical

Acquisition

Resolution	640 px x 480 px		
Acquisition Frame Rate	217 fps $t_{\text{readout}} = 4.62$ msec (max. Resolution) @ 10 bit ¹⁾		
Interface Frame Rate	Format	Resolution	max. Frame Rate (@ Trigger Mode)
(depends on used GigE interface performance)	Full Frame	640 x 480	217 fps
	Binning 2x2	320 x 240	217 fps
	Binning 2x1	320 x 480	217 fps
	Binning 1x2	640 x 240	217 fps
Pixel Formats	BayerRG8, BayerRG10		
Partial Scan	True Partial Scan with increasing Frame Rate on Y direction, Region of Interest (ROI) arbitrary		
Adjustable Acquisition Frame Rate	Off or 0.01 ... 4048 Hz		
Acquisition Mode	Continuous, Single Frame and Multi Frame		
Acquisition Status	AcquisitionActive, AcquisitionTrigger Wait		
Exposure Mode	Timed		

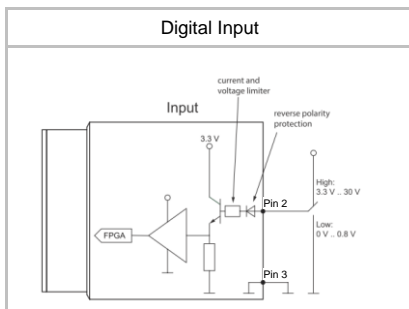
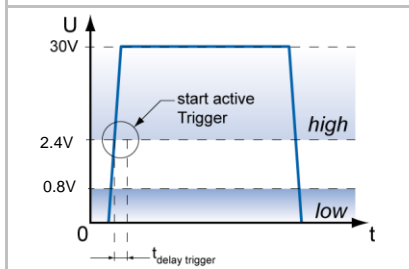
Image Pre-Processing

Analog Controls	Exposure Time (40 μsec ... 1 sec Step Size 1 μsec) Gain (0... 12 dB), Offset (0 ... 63 LSB 10 bit)
Color Models	Color
Binning Horizontal	1 or 2
Binning Vertical	1 or 2
Defect Pixel Correction	via Defect Pixel List with up to 512 Pixel Coordinates

Process Synchronization

Trigger Mode	Off (Free Running), On (Trigger)
Trigger Overlap Type	Readout
Trigger Sources	Hardware (Line0), Software or Off
	Trigger Delay out of t_{readout} : 11 μsec @ 10 bit ¹⁾
	max. Trigger Delay during t_{readout} : 25 μsec @ 10 bit ¹⁾
Trigger Delay	-
External Flash Sync	via Exposure Active
	$t_{\text{delay flash}} \leq 3 \mu\text{sec}$, $t_{\text{duration}} = t_{\text{exposure}}$

¹⁾ Sensor readout, different from pixel format


Trigger Mode: Start up time and valid Trigger


Digital I/Os

Lines	Input: Line 0, Output: Line1
Output Sources	Off, ExposureActive
Line Debouncer	Low and high signal separately selectable
	Debouncing Time 0 ... 5 msec, Step Size: 1 µsec

Interfaces and Connectors

Data and Power Interface	Gigabit Ethernet	Transfer Rate	1000 Mbits/sec
	Fast Ethernet	Transfer Rate	100 Mbits/sec
	Connector:	8P8C Modular Jack (RJ45) screw lock type	
	Pin Assignment:	1 – MX1+	5 – MX3-
		2 – MX1-	6 – MX2-
		3 – MX2+	7 – MX4+
		4 – MX3+	8 – MX4-

Process Interface Connector: M8/4-pin (SACC-DSI-M 8MS-4CON-L180)

Caution



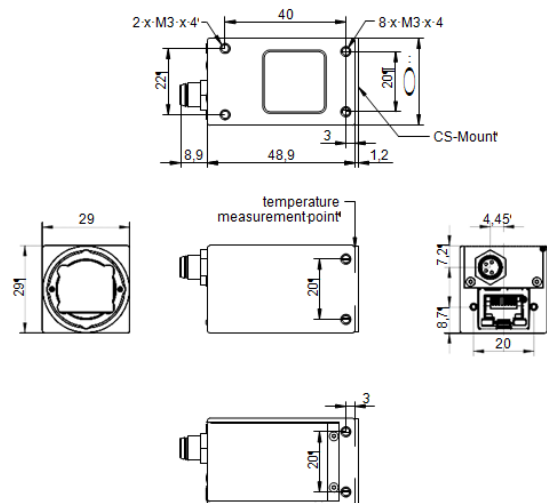
Assignment: 1 – VCC (Power and OUT) 3 – GND (Power and IN)
2 – IN+ 4 – OUT

* Note I/Os: Ground loops are to be avoided and can lead to destruction of the device.

Mechanical Data

Housing Zinc die casting, nickel-chrome-plated, IP40 (with mounted lens and GigE cable)

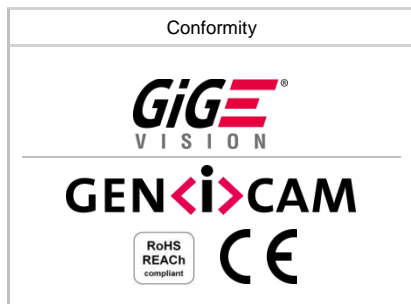
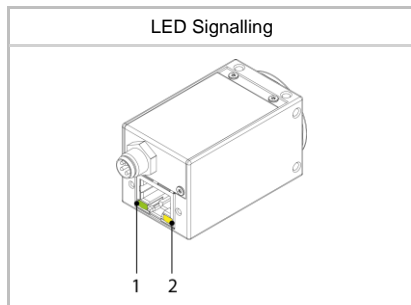
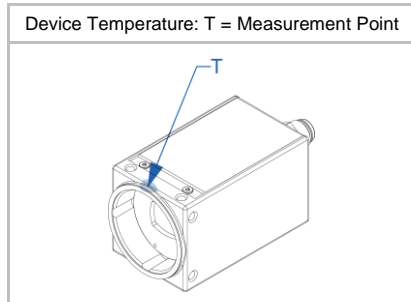
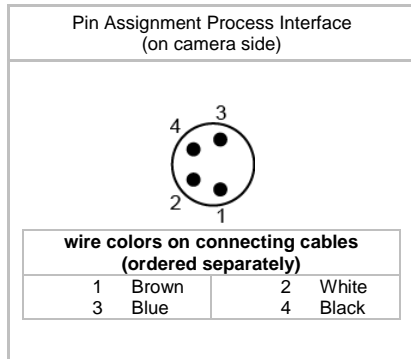
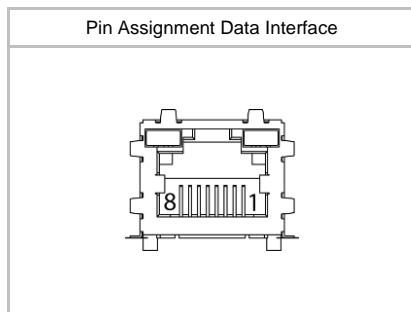
Dimensions



Weight 120 g

Optical Data

Lens Mount	CS-Mount
Optical Filter	IR cut filter



Electrical Data

Power Supply (ext.)	VCC: 12 V DC \pm 20%
	I: 183 mA
Power over Ethernet	-
Power Consumption	approx. 2.2 W @ 12VDC and 217 fps
Digital Input	direct, without optocoupler
	$U_{IN(low)}$: 0.0 ... 0.8 VDC
	$U_{IN(high)}$: 3.3 ... 30 VDC
	I_{IN} : <10 mA
	min. Impulse Length: 2.0 μ sec
Digital Output	direct, without optocoupler
	U_{EXT} : VCC
	I_{OUT} : max. 50 mA
	t_{ON} = typ. 3 μ sec t_{OFF} = typ. 40 μ sec
	* The digital I/Os are not potential-free and do not have an overrun cut-off.
	Incorrect wiring (overvoltage, undervoltage or voltage reversal) can lead to defect in the electronic system.
	Ground loops are to be avoided and can lead to destruction of the device.

Caution



LED Signalling

LED	Green flash	RX active
	Green	Link ON
	Yellow	Error
	Yellow flash	TX active

Environmental Data

Storage Temperature	-10 °C ... +70 °C
Operating Temperature	+5 °C ... +65 °C @ T = Measurement Point
	Ambient temperature above 42 °C requires cooling measures
Int. Temperature Sensor	
Humidity	10 % ... 90 % non-condensing

Network Interface Data

Interface	Gigabit Ethernet 1000BASE-T	1000 Mbits/sec
	Fast Ethernet 100 BASE-T	100 Mbits/sec
Ethernet IP Configuration	Persistent IP, DHCP, LLA	
Packet Size	576 ... 9000 Byte, Jumbo Frames supported	
Image Buffer	1 Images (Trigger Mode) / 1 Image (Free Running Mode)	

GigE Vision® Features

Events	-
Transmission via Asynchronous Message Channel	
Frame Counter	up to 2^{32}
Payload Size	0 ... 614400 Byte
Timestamp	64 bit
Packet Delay	0 .. 2^{32} - 1 Ticks
Packet Resend	Resend Buffer: 28 MB (32 Images)
GigE Vision	v2.0 (v1.2 backward compatible)

GenICam™ Features

Timer	-
User Sets	Factory Settings: UserSet0 (read only) Freely Programmable: UserSet1 Parameters: any user definable Parameter
Acquisition Abort	Delay up to 4.7 msec
SFNC Version	v2.1

Factory Settings after Start-Up

Trigger Mode	Off (Free Running)
Analog Controls	Exposure Time: 4 msec, Gain: 0 dB, Offset: 0
Pixel Format	BayerRG8
Partial Scan	Off
Acquisition Frame Rate	-
Timer	-
Defect Pixel Correction	ON
Fixed Pattern Noise Correction	ON
Digital Input	Line0, invert = false
Digital Output	Line1, invert = false, line source = Off
GPIO 1/2	-
TriggerSource	Off